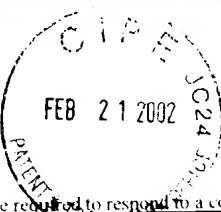


Please type a plus sign (+) inside this box ☒



COPY OF PAPERS
ORIGINAL FILED

PTO/SB/8B (08-00)

Approved for use through 10/31/2002 OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Complete if Known	
		Application Number	09/827,960 RECEIVED
		Filing Date	April 4, 2001
		First Named Inventor	MAYO, Stephen L. FEB 28 2002
		Group Art Unit	1631
		Examiner Name	TECH CENTER 1600/2900
Sheet 1	of 4	Attorney Docket Number	A-65353-7/RFT/RMS/RMK

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
<i>[Signature]</i>	A1	Brenner and Berry, A., et al., "A quantitative methodology for the de novo design of proteins", Protein Sci. 3:1871-1882 (Oct. 1994).	
	A2	Borman, "Proteins to Order," Chemical and Engineering Newsletter (C&EN) Oct. 6, 1997, 9-10 (1997).	
	A3	Bowie, J.U., et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions", Science vol 247:1306-1310 (Mar. 1990).	
	A4	Bowie, J.U., et al., "A Method to Identify Protein Sequences that Fold into a Known Three-Dimensional Structure", Science vol.253:164-170 (Jul. 1991).	
	A5	Brooks et al., "CHARMM: A Program for Macromolecular Energy, Minimization, and Dynamics Calculations," J. of Computational Chemistry, 4(2):187-217 (1983).	
	A6	Connolly, M.L., "Solvent-Accessible Surfaces of Proteins and Nucleic Acids", Science vol.221(4612):709-713 (Aug. 1983).	
	A7	Cornell et al., "A Second Generation Force Field for the Simulation of Proteins, Nucleic Acids, and Organic Molecules," J. Am. Chem. Soc., 117:5179-5197 (1995).	
	A8	Dahiyat, B.I., et al., "Automated design of the surface positions of protein helices", Protein Science 6:1333-1337 (Jun. 1997).	
	A9	Dahiyat et al., "Protein design automation," Caltech Biology Annual Report, 172 (1995).	
	A10	Dahiyat, B.I., et al., "Proteins from Scratch". press digest email by Science (Sep. 26, 1997).	
	A11	Dahiyat et al., "Protein Design Automation," Meeting Abstract, Protein Science vol 4, Suppl. 2, 83 (1995).	
	A12	Dahiyat et al., "Protein design Automation," Poster Sessions, Protein Science vol.5, Suppl. 1, 22-23 (1996).	
	A13	Dahiyat et al., "De Novo Protein Design: Fully Automated Sequence Selection," Science, 278:82-87 (1997).	
	A14	Dahiyat et al., "Probing the Role of Specificity in Protein Design," Caltech Biology Annual Report, 160-161 (1996)	
	A15	Dahiyat et al., "Protein Design Automation," 1996, Protein Science, vol. 5, pp 895-903, Nov. 30, 1999.	
	A16	Dahiyat, B.I., et al., "First fully automatic design of a protein achieved by Caltech scientists", new press release (Oct. 1997).	
	A17	Dalal, S., et al., "Protein alchemy: Changing beta-sheet into alpha-helix", Nature Struc. Biol. vol.4(7):548-552 (Jul. 1997).	

Examiner Signature <i>[Signature]</i>	Date Considered 4/7-02
---------------------------------------	-------------------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box ☐

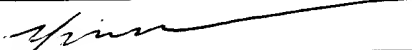
FEB 21 2002

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/827,960
		Filing Date	April 4, 2001
		First Named Inventor	MAYO, Stephen L.
		Group Art Unit	1631
		Examiner Name	
Sheet 2 of 4	Attorney Docket Number	A-65353-7/RFT/RMS/RMK	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	B1	DeGrado, W., "Proteins from Scratch," Science, 278:80-81 (1997).	
	B2	Desjarlais, J.R., et al., "De novo design of the hydrophobic cores of proteins", Protein Science 4:2006-2018 (1995).	
	B3	Desjarlais et al., "New strategies in protein design," Current Opinion in Biotechnology 4:460-466 (1995).	
	B4	Desmet, J., et al., "The 'Dead End Elimination' Theorem: A New Approach to the Side Chain Packing Problem", from "The Protein Folding Problem and Tertiary Structure Prediction" Ch.10:1-49 (1994).	
	B5	Desmet, J., et al., "The dead-end elimination theorem and its use in protein side-chain positioning", Nature vol.356:539-542 (Apr. 1992).	
	B6	Desmet et al., "Theoretical and Algorithmical Optimization of the Dead-End Elimination Theorem," Proceedings of the Pacific Symposium on Biocomputing '97, 122-133 (1997).	
	B7	Dunbrack Jr., R.L., et al., "Conformational analysis of the backbone-dependent rotamer preferences of protein sidechains", Struct. Biol. vol.1(5):334-340 (May 1994).	
	B8	Eisenberg, D., et al., "Solvation energy in protein folding and binding", Nature vol.319:199-203 (Jan. 1986).	
	B9	Goldstein, R.F., "Efficient Rotamer Elimination Applied to Protein Side-Chains and Related Spin Glasses", Biophys. Jour. vol.66:1335-1340 (May 1994).	
	B10	Gordon et al. "Energy functions for protein design," Curr. Opinion in Struct. Biol., 9:509-513 (1999).	
	B11	Harbury et al., "Repacking protein cores with backbone freedom: Structure prediction for coiled coils," Proc. Natl. Acad. Sci. USA, 92:8408-8412 (1995).	
	B12	Harbury et al., "High-Resolution Protein Design with Backbone Freedom," Science, 282:1462-1467 (1998).	
	B13	Hellinga, H.W., et al., "Construction of New Ligand Binding Site in Proteins of Known Structure", J. Mol. Biol. 222:763-785 (1991).	
	B14	Hellinga, H.W., "Rational protein design: Combining theory and experiment", Proc. Natl. Acad. Sci, USA vol.94:10015-10017 (Sep. 1997).	
	B15	Hellinga, H.W., et al., "Optimal sequence selection in proteins of known structure by simulated evolution", Proc. Natl. Acad. Sci., USA vol.91:5803-5807 (Jun. 1994).	
	B16	Holmes, "First-ever designer protein fits like a glove," New Scientist, IPC Magazines Limited, Oct. 11, 1997 (1997).	
	B17	Hurley et al., "Design and Structural Analysis of Alternative Hydrophobic Core Packing Arrangements in Bacteriophage T4 Lysozyme," J. Mol. Biol., 224:1143-1159(1992).	

Examiner Signature		Date Considered	9-17-02
--------------------	---	-----------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box

FEB 21 2002

PTO/SB/8B (08-00)


Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	09/827,960
				Filing Date	April 4, 2001
				First Named Inventor	MAYO, Stephen L.
				Group Art Unit	1631
				Examiner Name	
Sheet	3	of	4	Attorney Docket Number	A-65353-7/RFT/RMS/RMK

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
/	C1	Jones, D.T., "De novo protein design using pairwise potentials and a genetic algorithm", Protein Science 3:567-574 (1994).	
/	C2	Koehl et al., "De Novo Protein Design I. In Search of Stability and Specificity," J. Mol. Biol., 293:1161-1181 (1999).	
/	C3	Kono et al., "Energy Minimization Method Using Automata Network for Sequence and Side-Chain Conformation Prediction from Given Backbone Geometry," Proteins: Structure, Function, and Genetics, 19:244-255 (1994).	
/	C4	Kortemme et al., "Design of a 20-Amino Acid, Three-Stranded β -Sheet Protein," Science, 281:253-256 (1988).	
/	C5	Lasters et al., "Enhanced dead-end elimination in the search for the global minimum energy conformation of a collection of protein side chains," 1995, Protein Engineering, vol. 8, No. 8, pp. 815-822.	
/	C6	Lasters, I., et al., "Dead-End Based Modeling Tools to Explore the Sequence Space That is Compatible with a Given Scaffold", Jour. of Protein Chem. vol.16(5):449-452 (Jul. 1997).	
/	C7	Lazar et al., "De novo design of the hydrophobic core of ubiquitin," Protein Science 6:1167-1178 (1997).	
/	C8	Lee et al., "Accurate prediction of the stability and activity effects of site-directed mutagenesis on a protein core," Nature, 352:448-451 (1991).	
/	C9	Lim et al., "The crystal structure of a mutant protein with altered but improved hydrophobic core packing," Proc Natl Acad Sci U S A. 1994 Jan 4;91(1):423-7	
/	C10	Mayo et al., "DREIDING: A Generic Force Field for Molecular Simulations," J. Phys. Chem., 94:8897-8909 (1990).	
/	C11	Minor Jr., D.L., "Measurement of the β -sheet-forming propensities of amino acids", Nature vol.367:660-663 (Feb. 1994).	
/	C12	Munoz, V., et al., "Helix design, prediction and stability", Curr. Opin. in Biotech. 6:382-386 (Aug. 1995).	
/	C12	Munoz, V., et al., "Intrinsic Secondary Structure Propensities of the Amino Acids, Using Statistical phi-psi Matrices: Comparison with Experimental Scales", Proteins 20:301-311 (1994).	
/	C14	Munoz, V., et al., "Analysis of the effect of local interactions on protein stability", Folding & Design 1(3):167-178 (Apr. 1996).	
/	C15	Pabo, C., "Designing proteins and peptides", Nature vol.301:200 (Jan. 1983).	
/	C16	Padmanabhan, S., et al., "Relative helix-forming tendencies of nonpolar amino acids", Nature vol.344:268-270 (Mar. 1990).	
/	C17	Ponder, J.W., et al., "Use of Packing Criteria in the Enumeration of Allowed Sequences for Different Structural Classes", release by Acad. Press Inc. (London) Ltd. pp.775-791(1987).	
/	C18	Rappe et al., "Charge Equilibration for Molecular Dynamics Simulations," J. Phys. Chem., 95:3358-3363 (1991).	

Examiner Signature		Date Considered	9-17-02
--------------------	---	-----------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box ☐

COPY OF PAPER
ORIGINALLY FILED

FEB 21 2002

PTO/SB 8B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031


U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	09 827,960
				Filing Date	April 4, 2001
				First Named Inventor	MAYO, Stephen L.
				Group Art Unit	1631
				Examiner Name	
Sheet	4	of	4	Attorney Docket Number	A-65353-7 RFT RMS/RMK

RECEIVED
FEB 28 2002
TECH CENTER 1600/2900

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
/	D1	Regan, L., "Helix is a helix is a helix?", Proc. Natl. Acad. Sci. USA vol.94:2796-2797 (Apr. 1997).	
	D2	Smith, C.K., et al., "Guidelines for Protein Design: The Energetics of .beta. Sheet Side Chain Interactions", Science vol.270:980-982 (Nov. 1995).	
	D3	Stickle et al., "Hydrogen Bonding in Globular Proteins," (1992) Journal of Molecular Biology, vol.226, pp. 1143-1159.	
	D4	Sun, S., et al., "Designing amino acid sequences to fold with good hydrophobic cores", Protein Eng. vol.8(12):1205-1213 (1995).	
	D5	Tuffery et al., "A New Approach to the Rapid Determination of Protein Side Chain Conformations," J. of Biomolecular Struct. & Dynamics, 8(6):1267-1289 (1991).	
	D6	van Gunsteren et al., "Prediction of the Activity and Stability Effects of Site-directed Mutagenesis on a Protein Core," J. Mol. Biol., 227:389-395 (1992).	
	D7	Villegas et al., "Stabilization of proteins by rational design of .alpha.-helix stability using helix/coil transition theory," Folding & Design, 1(1):29-34 (1995).	
	D8	Wesson et al., "Atomic solvation parameters applied to molecular dynamics of proteins in solution," Protein Science, 1:227-235 (1992).	
✓	D9	Wodak, S.J., et al., "Analytical approximation to the accessible surface area of proteins", Proc. Natl. Acad. Sci. USA vol.77(4):1736-1740 (Apr. 1980).	

Examiner Signature		Date Considered	9-17-02
--------------------	---	-----------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPFP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.